

Application No. 10/520,574
Response to Office Action dated July 19, 2007

Docket No.: 13077*98US
(CH7779/STA 196-US)

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Amendments to the Listing of the Claims:

Please cancel claim 13, without prejudice, and add new claim 23, as shown below in the following listing of all claims ever presented. The following listing of claims replaces all prior versions thereof.

1. (Previously Presented) A process for the preparation of a silica sol comprising reacting a fresh sol with guanidine carbonate.
2. (Previously Presented) The process of claim 1, wherein the reaction with guanidine carbonate is conducted in the presence of a base.
3. (Previously Presented) The process of claim 2, wherein the base is selected from the group consisting of sodium water glass, potassium water glass, potassium hydroxide, sodium hydroxide and combinations thereof.
4. (Previously Presented) The process of claim 2, wherein the reaction is carried out at a reaction temperature and at a pH of from 8 to 12, the pH being measured at the reaction temperature.
5. (Previously Presented) The process of claim 1, wherein said process is conducted continuously.
6. (Previously Presented) The process of claim 2, wherein the fresh sol and an aqueous solution of guanidine carbonate are fed continuously into a reactor, said reaction being conducted at,
a pH of from 8 to 12, and
a reaction temperature of from 25C to 100C, further wherein an average residence time is selected such that the silica sol prepared has a BET surface area of 100m²/g.
7. (Previously Presented) The process of claim 6, wherein said reaction temperature is from 80 to 100C.

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8. (Previously Presented) The process of claim 6, wherein an additional base is added into the reactor.

9. (Previously Presented) The process of claim 6, wherein the reactor is a multistage reactor cascade having a first reactor, said fresh sol and an aqueous solution of guanidine carbonate being fed to the first reactor.

10. (Previously Presented) The process of claim 9, wherein the pH, measured at the reaction temperature, is from 8 to 12 in all reactors of the multistage reactor cascade, and the reaction temperature in the first reactor is kept at from 25C to 100C, and the reaction temperature in each further reactor is kept at from 60C to 100 C.

11. (Previously Presented) The process of claim 1, wherein the reaction is conducted batchwise, the guanidine carbonate being in the form of an aqueous solution of guanidine carbonate, said process comprising,

introducing initially a part of the fresh sol and the aqueous solution of guanidine carbonate into a reactor, resulting in the formation of a remainder comprising said fresh sol and said aqueous solution of guanidine carbonate, said remainder not being initially introduced into said reactor, and

metering subsequently said remainder into the reactor, and the holding said reactor at a temperature such that an amount of solvent which corresponds to the amount of said remainder evaporates from said reactor, thereby concentrating said silica sol.

12. (Previously Presented) The process of claim 1, further comprising concentrating said silica sol by a method selected from the group consisting of evaporation of solvent and by ultrafiltration, wherein the concentration step is conducted during or after the reaction of fresh sol with guanidine carbonate.

13. (Canceled)

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14. (Presently Presented) A silica sol having a BET surface area of from 100 to 1200 m²/g, wherein said silica sol comprises from 0.05 to 15% by weight of guanidinium ions, based on the total weight of the silica sol, wherein said silica sol is free of amine.
15. (Previously Presented) The silica sol of claim 13, wherein said silica sol has a BET surface area of from 300 to 1200 m²/g.
16. (Previously Presented) The silica sol of claim 14, wherein said silica sol has a pH of from 2 to 12.
17. (Previously Presented) The silica sol of claim 14, wherein said silica sol is not stabilized with aluminum.
18. (Previously Presented) The silica sol of claim 14, wherein said silica sol has a molar SiO₂/N ratio of from 2 to 20.
19. (Previously Presented) The silica sol of claim 14, wherein said silica sol has a zeta potential of from -20 to -80 mV.
20. (Previously Presented) The silica sol of claim 14, wherein said silica sol has an Si-O stretching vibration IR band position at a wave number of from 1113 cm⁻¹ to 1080 cm⁻¹.
21. (Previously Presented) A paper retention aid comprising the silica sol of claim 14.
22. (Previously Presented) The process as claimed in claim 1, wherein said silica sol is not stabilized with aluminum and is free of amine.
23. (New) A silica sol prepared by the process of claim 1, wherein said silica sol has a BET surface area of from 100 to 1200 m²/g, wherein said silica sol comprises from 0.05 to 15% by weight of guanidinium ions, based on the total weight of the silica sol, and wherein said silica sol is free of amine.